

THE SECOND REPRESENTATIVE OF THE GENUS
***HAFENREFFERIA* OUDEMANS**
(ACARI ; CRYPTOSTIGMATA)
FOUND IN CENTRAL JAPAN

Jun-ichi AOKI

Department of Zoology, National Science Museum, Tokyo

The genus *Hafenrefferia* belonging to the family Tenuialidae has been represented by a single species, *H. gilvipes* (C. L. KOCH). The species seems to be widely distributed in Europe and hitherto reported from Germany, Italy, Sweden, Finland, Netherlands, Hungary, U.S.S.R., etc. A closely related species newly found from Japan exhibits some distinct differences, especially in the shape of pteromorphae, lamellar cusps, sensilli and also in anal aperture, and is described below as a new species.

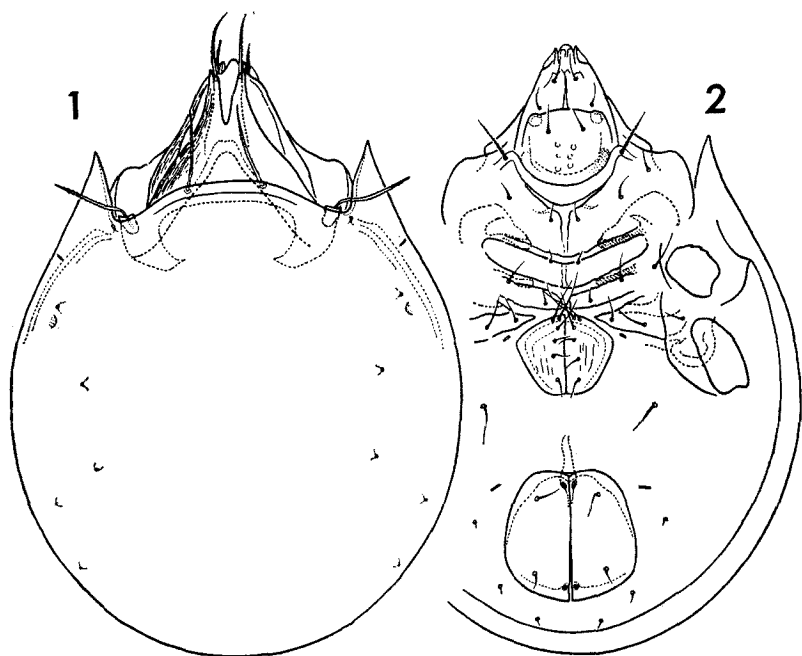
***Hafenrefferia acuta* AOKI, spec. nov.**

(Figs. 1-8)

Material examined. Holotype(NSM-AC-A 25) : Gumma Prefecture, Mt. Haruna, near Haruna Lake, from a rotten wood. 10-XI-1965. J. AOKI ; 15 paratypes and 58 specimens: the same data as the holotype. The type-series deposited in National Science Museum, Tokyo.

Measurement. Length: 860(903)990 μ ; width: 610(648)720 μ .

Prodorsum. The anterior margin of rostrum tricuspidate ; the lateral teeth sharply pointed, while the median one appears to be rounded at the tip (Figs. 1 and 2) ; but an observation in lateral view reveals that the median tooth is strongly bent downward, so that it gives us an impression of rounded shape in dorsal view; the rostrum of a crushed specimen exhibits, therefore, more pointed median tooth, even in dorsal view (Fig. 5) ; each lateral tooth with a sclerotized inner margin. Rostral setae inserted on the transverse plane of the posterior end of rostral incisions, or a little more posteriorly. A slender tutorium situated outside the lamella on each side ; it's anterior end reaches about mid-distance between the tip of lateral tooth and the bottom of rostral incision. Lamellar cusps long and slender, but shorter than the fused portion of lamellae (the ratio

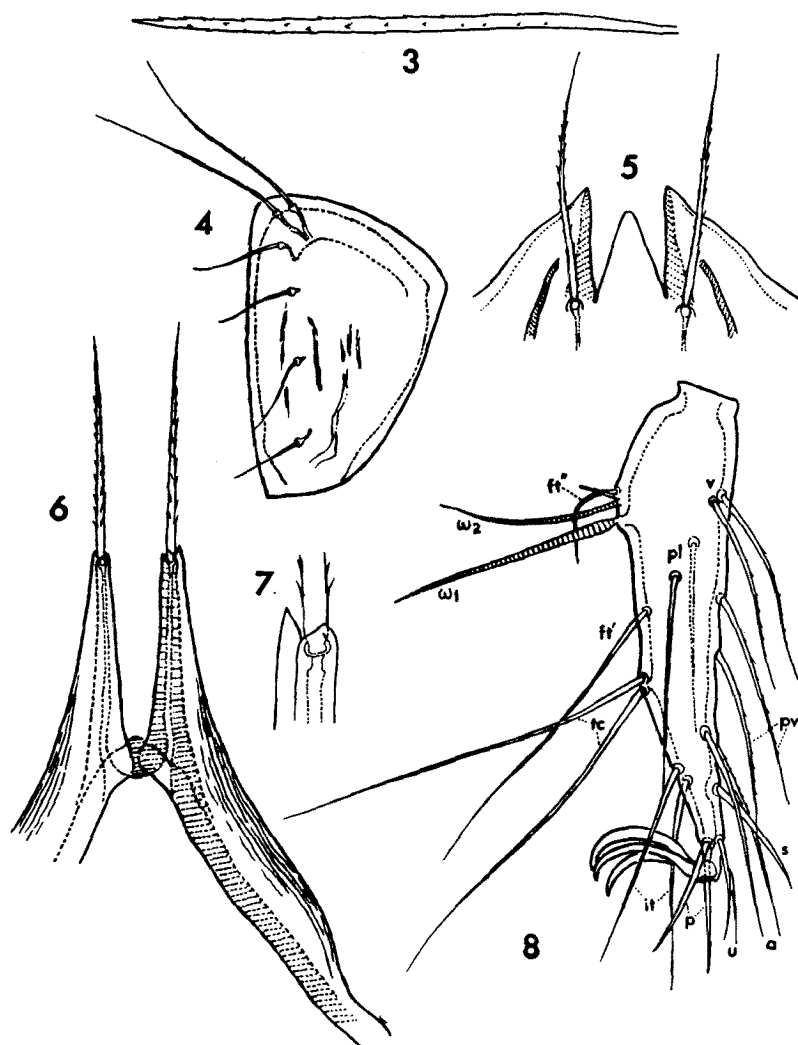
Figs. 1-2. *Hafenrefferia acuta* spec. nov.

1. Dorsal side

2. Ventral side

is 2:3 in lateral view); they are separated from each other as wide as their width; the distal end of lamellar cusps located above the dorsal surface of prodorsum as high as $\frac{1}{2}$ length of cusps themselves (in lateral view); on the end of cusp only the outer projection markedly developed; in some cases it is more conspicuous than figured in Figs. 6 and 7; an inconspicuous dorsal projection covering the insertion of lamellar seta. Rostral, lamellar as well as interlamellar setae distinctly barbed; the ratio in their lengths is 1.0:1.4:1.8. Lamellar setae longer than the free cusps of lamellae. The insertions for interlamellar setae situated beneath the anterior margin of notogaster. Sensillus nearly setiform and weakly roughened; it's proximal as well as distal portions slightly thinner than the middle part, but never spindle-shaped; though not so sharply, the distal end is pointed.

Notogaster. The anterior margin of notogaster fairly convex. Pteromorpha sharply pointed anteriorly, extending beyond the anterior margin of pedotecta I; it



Figs. 3-8. *Hafenrefferia acuta* spec. nov.

3. Sensillus 4. Genital plate (left) 5. Rostral region (on a crushed specimen)
 6. Lamellae with cusps and lamellar setae 7. Distal end of lamellar cusp (left)
 8. Tarsus I (antiaxial)

has the median margin weakly convex and the lateral one straight or slightly concave to give us impression that it is somewhat bending outward ; the median margin sclerotized, especially on the posterior half, but not so heavily. There are no notogastral setae, but showing setal insertions, of which 4 pairs are easily discernible in dorsal aspect; in lateral view of animal, 2 more pairs can be found on the posterolateral portion. At least, 2 pairs of lyrifissures present, one at the basal part of pteromorphae and the other on the posterolateral part of notogaster. In the vicinity of the second pairs of setal insertions (in dorsal view) a pair of structures resembling areae porosae are present.

Anogenital region. Anal aperture slightly longer than wide, being provided with 2 pairs of anal setae well spaced. Three pairs of minute adanal setae arranged as in Fig.2. Adanal fissures longer than any of adanal setae, being aligned transversely or obliquely and situated a little posterior to the level of the anterior margin of anal opening. Aggenital setae long and conspicuous, $\frac{1}{4} \sim \frac{1}{5}$ as long as their mutual distance. Genital aperture not longer than wide ; the widest part occurs in the level $\frac{1}{3}$ distant from the anterior margin along its length ; each genital plate with 5 pairs of long setae ; the anteriormost 2 setae (g_4 and g_5) located side by side near the anterior margin and a little longer than the widest part of the plate ; irregular, longitudinal furrows are observed on the surface of genital plates. A pair of small aggenital fissures exist near the lateral corners of genital aperture.

Epimeral region. Epimeral ridges distinctly developed ; the interspaces between them become progressively narrower posteriorly ($bo.1-bo.2 > bo.2-bo.sj > bo.sj-bo.3$) and $bo.3$ fused medially to $bo.4$. Sternal ridge (sometimes indistinct) connecting $bo.1$, $bo.2$, $bo.sj$ and $bo.3$. Setal formula for epimerata: (3 : 1 : 3 : 3). A strong seta inserted on each side of *mnt*, being apparently barbed, thicker and longer than the epimeral setae.

Legs. Measurements of tarsi, tibiae, genua and femora of legs I~IV reveal the following relationships in length:

$$TaI > TaIV > TaII > TaIII ; \quad TiIV > TiI \approx TiIII > TiII ;$$

$$GeI > GeIV \approx GeII \approx GeIII ; \quad FeI > FeII > FeIV > FeIII ;$$

$$TaI \approx FeI ; \quad TaIII \approx FeIV ; \quad TaIV \approx TiIV \approx FeII$$

Chaetotaxy of legs is as shown in Table I.

On tarsus I, ω_1 and ω_2 inserted close to each other, the former being longer and thicker than the latter ; ft'' far shorter than ft' , being situated close to famulus and strongly bent in the form of an elbow; tc the longest setae on tarsus I. On tarsus II, ω_1 and ω_2 of the same shape and length, well spaced each other and more

Table 1. Chaetotaxy of legs I~IV. t: a total number of setae; s: number of solenidia; f: number of famuli.

	Tr t	Fe t	Ge t (s)	Ti t (s)	Ta t (s) (f)
I	1	3	4 (1)	6 (2)	22 (2) (1)
II	1	4	4 (1)	5 (1)	18 (2) (0)
III	2	3	3 (1)	4 (1)	15 (0) (0)
IV	1	3	3 (0)	3 (1)	12 (0) (0)

blunt at tips than those on tarsus I. Each leg provided with 3 claws, of which the median one about $1.5 \times$ as thick as the lateral ones.

Remarks. *Hafenrefferia gilvipes* (C.L.KOCH). which was redescribed by OUDEMANS(1917), SELLNICK(1928), WILLMANN(1931), WOOLLEY & HIGGINS(1955), et al differs from *H. acuta* spec. nov. in the following diagnoses:

- 1) The stout, triangular pteromorphae with heavily sclerotized median margins.
- 2) Two small projections on the tip of lamellar cusp, of which the inner one is longer than the outer one.
- 3) The sensillus with the distal half slightly thickened and somewhat clavate.
- 4) The anal aperture strongly narrowed anteriorly.

As to habitats of the European species OUDEMANS (1917) mentioned: "An faulender Rinde, auf und unter Baummoos, unter faulenden Blättern, unter Steinen." and WILLMANN (1931): "In Moos an alten Baumstümpfen usw., stellenweise häufig." A large number of *H. acuta* were found in a similar habitat, having been aggregated on the underside of a stout, rotten wood lying on ground. They may be xylophagous animals and at the same time prefer dark and moist habitats.

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